

GLOSSARY AND ACRONYMS

Aerosol - A gaseous form of a chemical which includes mists, vapors, gases, and fogs would be considered an aerosol. Hydrochloric and sulfuric acid aerosols are the reportable form of these two chemicals. These acids in aqueous solutions are no longer reportable under TRI, but an aerosol that is generated from a solution is reportable.

Air Releases - Point and non-point air emissions to air. Point releases are those chemicals released through **stacks**, vents, or other confined spaces and are usually regulated by permit. Non-point, or **fugitive**, releases include chemical leaks from valves, pump seals, etc., evaporative losses from surface impoundments or spills, or releases from building ventilation systems.

ARP - DNREC's Accidental Release Program - Formerly known as the Industrial Disaster Prevention program, ARP provides protection for the lives and health of the citizens of Delaware by ensuring that companies with extremely hazardous substances have proper control plans and operations in place to prevent disasters.

Article - The term in 40 CFR Section 372.3, is defined as a manufactured item: (1) which is formed to a specific shape or design during manufacture; (2) which has end use functions dependent in whole or in part upon shape or design; and (3) which does not release an EPCRA section 313 chemical under normal conditions of processing or use of that item at the facility or establishment.

ATSDR - Agency for Toxic Substances and Disease Registry - A federal public health agency of the U.S. Department of Health and Human Services. ATSDR serves the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and diseases related to toxic substances.

Bioaccumulate - Bioaccumulate means to increase the concentration of a chemical in a biological organism such as humans over time, compared to the chemical's concentration in the environment. Compounds accumulate in living things any time they are taken up and stored faster than they are broken down or excreted.

Bottom Ash - Ash that falls to the bottom of the combustion chamber in a process burning fuels like coal and oil. Bottom ash is removed for disposal on a regular basis. Also see **Fly Ash**.

CAA - Clean Air Act - The Clean Air Act is the law that defines EPA's responsibilities for protecting and improving the nation's air quality and the stratospheric ozone layer. The last major change in the law was enacted by Congress in 1990. Legislation passed since then has made several minor changes.

Carcinogen - A carcinogen is a substance that can cause cancer of some form.

CEM - Continuous Emissions Monitoring - A continuous emission monitoring system (CEMS) is the total equipment necessary for the determination of a gas or particulate matter concentration or emission rate using continuous pollutant analyzer measurements. CEMS are required under some of the EPA regulations for either continual compliance determinations or determination of when standards have been exceeded.



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CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The Superfund Amendments and Reauthorization Act (SARA) amended CERCLA on October 17, 1986. SARA made several important changes and additions to the program, including provision for the TRI Program in the Emergency Planning and Community Right-to-Know Act. (See **EPCRA** and **SARA** below).

Chemical Abstracts Service (CAS) Registry Number - A numerical identification given to each unique chemical, which aids in the identification of a chemical with multiple synonyms (e.g., CAS 78-93-3 - methyl ethyl ketone, is also known as 2-butanone). Chemical categories under TRI do not possess a CAS numbers and are assigned category codes by the EPA. Lead compounds, for example, is category code N420.

Covered Facility - A facility, as defined in 40 CFR Section 372.3, that has 10 or more full-time employees, is in a covered **NAICS** code (see below), and meets the activity threshold for manufacturing, processing, or otherwise using an **EPCRA Section 313 chemical** (see below).

Disposal - Any underground injection, placement in landfills/surface impoundments, land treatment, or other intentional land disposal.

DNREC - Delaware Department of Natural Resources and Environmental Control - The State agency in Delaware that is responsible for environmental concerns. It has five divisions, and the Cabinet Secretary reports to the Governor. The Division of Air and Waste Management is responsible for this report, and the Divisions of Fish and Wildlife, Parks and Recreation, Soil and Water Conservation, and Water Resources complete the Department.

Emission Factors - Emission factors are published industry emission rates of chemicals in particular processes, which are based on averaging a large sampling of representative processes.

Energy Recovery - The use of a waste product to create and utilize energy to generate steam, electricity, etc. A TRI chemical in waste must contain enough heating value to sustain the combustion process; otherwise it is considered only treatment or incineration of the waste.

Environmental Fate - The disposition, over time, of a chemical in the environment. The bioaccumulation of a chemical in fish and the decomposition of a chemical when exposed to sunlight are examples of environmental fate.

EPA - United States Environmental Protection Agency.

EPCRA - Emergency Planning and Community Right-to-Know Act. Congress enacted the Emergency Planning and Community Right to Know Act as Title III of the Superfund Amendments and Reauthorization Act (**SARA**) of 1986. This act includes the TRI program, and more information can be found in Appendix A of this report.

EPCRA Section 313 Chemical - A chemical or chemical category listed in 40 CFR Section 372.65 (40 CFR Section 372.3) - see **Toxic Chemical and Modified Chemicals** below.

Facility - All buildings, equipment, structures, and other stationary items which are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with such person). A facility may contain more than one establishment, or distinct business unit.

Fluid Bed - A fluid bed process uses a gas introduced under a bed of fine solid material to separate and fluidize the material, creating a condition of rapid mixing. The bed has the appearance of a vigorously boiling liquid, and the bed of material takes on many of the properties of a fluid. It exerts pressure and the material will flow through a hole in the vessel and over or under a weir within the bed. The fluid bed process is used to improve reaction time, heat transfer, processing uniformity, and process yield or conversions.

Fluid Catalytic Cracker - In petroleum chemistry, cracking is the process whereby complex organic molecules are converted to simpler molecules (light hydrocarbons) by the breaking of carbon-carbon bonds. Fluid Catalytic Cracking (FCC) produces a high yield of gasoline and LPG from heavier crude oil distillation fractions and residues. FCC uses a very active hot catalyst where it contacts the heavy feed material in a reactor, vaporizes it, and the cracking reactions break down the high molecular weight oil into lighter components including LPG, gasoline, and diesel fuel.

Fluid Coker - Used in refineries, fluid coking is a continuous fluid bed technology that thermally converts heavy hydrocarbons to lighter products.

Fly Ash - Ash that becomes airborne and escapes in the exhaust air from a combustion process that burns fuels like coal or oil. Fly ash can be controlled with air pollution control devices like precipitators and filters. Also see **Bottom Ash**.

FOIA - Freedom of Information Act – Originally signed into law on July 4, 1966 and amended in 1996, 2002 and 2007. This act allows for the full or partial disclosure of previously unreleased information and documents controlled by the United States Government. The Act defines agency records subject to disclosure, outlines disclosure procedures and grants some exemptions to the statute. Many states, including Delaware, have their own FOIA statutes.

Form A - A two-page report that a facility may use when certain criteria are met for a given chemical that must be reported. Refer to page 2 in this report for general reporting requirements, and pages 3-4 for details on eligibility and a description of the Form A data elements. The Form A provides basic facility information and the chemical identity, but does not provide other data that is given on the Form R. The Form A form is shown in Appendix N.

Form R- A five-page report that a facility must use (except when Form A eligibility applies) for reporting on each TRI chemical that the facility exceeds an applicable threshold. The Form R form is shown in Appendix M.

Fugitive Emissions - See **Air Releases**.

Hazardous Air Pollutants (HAPs) - Air pollutants which are not covered by ambient air quality standards but which, as defined in the Clean Air Act, may present a threat of adverse human health effects or adverse environmental effects. Such pollutants include asbestos, beryllium, mercury, benzene, coke oven emissions, radionuclides, and vinyl chloride.



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IARC - International Agency for Research on Cancer (IARC) – IARC is part of the World Health Organization. IARC coordinates and conducts research on the causes of human cancer, the mechanisms of carcinogenesis, and develops scientific strategies for cancer control.

Import - To cause a chemical to be imported into the customs territory of the United States. For purposes of the definition, to cause means to intend that the chemical be imported and to control the identity of the imported chemical and the amount of the imported chemical. For TRI reporting purposes, “import” is the same as “manufacture”, as in either case the facility has caused the chemical to become present at the facility.

LEPC - Local Emergency Planning Committee (LEPC). Each LEPC has specific duties to fulfill, and the State Emergency Response Commission (SERC) supervises and coordinates those activities. The LEPC's are required to have broad representation from many groups including state and local officials, media, law enforcement, fire service, EMS and health care, environmental, community groups and citizens and industrial facilities that use hazardous materials. The SERC also receives various reports from businesses that use or store hazardous chemicals, or that experience an emergency release of a hazardous substance, and must establish procedures for receiving and processing requests for information from the public. See **SERC** for more information.

Manufacture - To produce, prepare, compound or import a TRI chemical, including the coincidental production of the chemical as an intermediate, a by-product, or an impurity.

Mass Balance Calculation - A method of calculating amounts and concentrations at a point in a process based on known amounts and concentrations at other points in the process. The basic Mass Balance equation is: $\text{Input} + \text{Generation} = \text{Output} + \text{Consumption}$.

MSDS - Material Safety Data Sheet - A Material Safety Data Sheet (MSDS) is prepared by the manufacturer of a product. The purpose of the form is to provide information on the safe use, handling and potential hazards of a product. The form is required to be developed under 29 CFR Section 1910.1200(g). This form lists important attributes, including toxicity and safety information that a user or handler of the chemical is required to know about.

Modified Chemicals - The U.S. EPA has qualified several TRI chemicals to be reportable only in a specific form, such as hydrochloric acid and sulfuric acid aerosols, or has changed the method by which threshold and release calculations are made.

NAAQS - National Ambient Air Quality Standards - The Clean Air Act required EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, which are called “criteria” pollutants. They are: Carbon monoxide, lead, nitrogen dioxide, particulate matter (10 and 2.5 microns), ozone, and sulfur dioxide. Primary standards set limits to protect public health, including the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

NAICS - North American Industrial Classification System – This is a systematic classification system which assigns a six-digit number to each commercial and industrial facility. It expands the four-digit classification categories used by the **Standard Industrial Classification (SIC)** codes. It is used by government, industry, and sales organizations to reach targeted industries for data collection, enforcement, and sales. The TRI program converted to NAICS starting with the 2006 reporting year. For TRI prior to January 1, 1998, the covered SIC codes were 20 through 39 (manufacturing facilities). Beginning January 1, 1998, the covered SIC codes were codes 10 (except 1011, 1081, and 1094), 12 (except 1241), or 20-39; industry codes 4911, 4931, or 4939 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce); or 4953 (limited to facilities regulated under the Resource Conservation and Recovery Act, Subtitle C, or 5169, or 5171, or 7389 (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis). The NAICS codes are not directly translatable from the SIC codes, so a reference document is usually required to translate or compare the codes. The intent in converting to the NAICS codes was to more accurately define the TRI reporting universe without adding to or subtracting from it. Also see **SIC – Standard Industrial Classification**

NESHAP - National Emissions Standards for Hazardous Air Pollutants - The Clean Air Act (**CAA**) requires the U. S. Environmental Protection Agency (**EPA**) to develop and enforce regulations to protect the general public from exposure to hazardous air pollutants (**HAPs**).

NPDES - National Pollutant Discharge Elimination System - The Clean Water Act (CWA) requires that all discharges of pollutants to surface waters (streams, rivers, lakes, bays, and oceans) must be authorized by a permit issued under the National Pollutant Discharge Elimination System (NPDES) program.

Off-site Transfers - Waste that is transferred off-site to another facility for the purpose of treatment, recycling, energy recovery, or disposal.

On-site Releases - Emissions from a facility to the environment as a result of normal operations or accidents. This includes emissions to the air, discharges to surface waters, disposal onto or in the ground, and underground injection. Underground injection is not an approved method of hazardous waste disposal in Delaware.

On-site Waste Management - Wastes that are treated, recycled, or recovered for energy at the facility. The disposal of a waste into an on-site landfill is considered a release by EPA, and thus is not included in this category.

OSHA - Occupational Safety and Health Administration - The Federal agency that has the responsibility to ensure a safe and healthful work environment.

Otherwise Use - Encompasses any activity involving a TRI chemical that does not fall under the definition of manufacture or process. A chemical that is not intentionally incorporated into a product, like a solvent used for cleaning, falls under the otherwise use category.

P2 - Pollution Prevention - Pollution Prevention (P2) means "source reduction," as defined under the Pollution Prevention Act and other practices that reduce or eliminate the creation of pollutants. This EPA program was created to encourage, assist and lead others to prevent pollution at the source. Improved operation and maintenance, material substitution, process



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and equipment modification, conservation practices, product modification, and in-process recycling are examples of pollution prevention. EPA provides incentives to businesses, including public recognition, tools, and technical assistance. Since reduction of waste at its source is emphasized, recycling, energy recovery, treatment, and disposal are not included within the definition of pollution prevention. Also see **Waste Management** below.

PAC - Polycyclic Aromatic Compounds - PACs are multi-numbered benzene-ring compounds. PACs contain polycyclic aromatic hydrocarbons (PAHs), substituted PAHs, and PAH derivatives.

PAH - Polynuclear Aromatic Hydrocarbon - Polynuclear aromatic hydrocarbons (PAHs) are hydrocarbon compounds with multiple benzene rings. PAHs are typical components of asphalts, fuels, oils, and greases. They are also called Polycyclic Aromatic Hydrocarbons. They are of concern because some of these compounds have been identified as carcinogens.

PCB - Polychlorinated Biphenyls - A group of toxic, persistent chemicals used in electrical transformers and capacitors for insulating purposes, and in gas pipeline systems as lubricants. The sale and new use of these chemicals were banned by law in 1979.

PBT - Persistent Bioaccumulative Toxin - PBT pollutants are chemicals that are toxic, persist in the environment and bioaccumulate (are not broken down or excreted), and thus pose risks to human health and ecosystems. The biggest concerns about PBT's are that they transfer rather easily among air, water, and land, and span boundaries of geography and generations.

PEL - Permissible Exposure Limit - OSHA sets permissible exposure limits (PELs) to protect workers against the health effects of exposure to hazardous substances. PELs are regulatory limits on the amount or concentration of a substance in the air. PELs are enforceable. OSHA PELs are based on an 8-hour time weighted average (TWA) exposure.

pH - pH is a measure of the acidity in a liquid. High acid content will be indicated by a pH of less than 7.0, and low acidity, called alkalinity, is indicated by a pH higher than 7.0. Although the pH scale is 0-14, it is a logarithmic scale and the range is based on powers of 10. In the case of pH, the range is 1×10^{-7} to 1×10^7 (0.0000001 to 10,000,000).

PM - Particulate Matter - Tiny particles of solid or liquid suspended in a gas or liquid. Sources of particulate matter can be man-made or natural. Some particulates occur naturally, originating from volcanoes, dust storms, forest and grassland fires, living vegetation, and sea spray. Human activities, such as the burning of fossil fuels in vehicles, power plants and various industrial processes also generate significant amounts of particulates. Increased levels of fine particles in the air are linked to health hazards such as heart disease, altered lung function and lung cancer. The notation PM_{10} is used to describe particles of 10 micrometers or less and $PM_{2.5}$ represents particles less than 2.5 micrometers in diameter. One micrometer is one millionth of a meter, or about 0.00004 inches.

POTW - Publicly Owned Treatment Works - Usually a municipal wastewater treatment facility.

PPA - Pollution Prevention Act of 1990 - Pollution prevention became a national policy with the Pollution Prevention Act of 1990. The Act established the waste management hierarchy whereby wastes should be prevented or reduced at the source whenever feasible, and safe disposal is the option of last resort.

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Process - To prepare a TRI chemical, after its manufacture, for distribution into commerce. Processing includes intentionally incorporating the chemical into a product or the reaction of the chemical to form another chemical or product.

RCRA - Resource Conservation and Recovery Act - The Resource Conservation and Recovery Act - commonly referred to as RCRA - is our nation's primary law governing the disposal of solid and hazardous waste. Congress passed RCRA on October 21, 1976 to address the increasing problems the nation faced from our growing volume of municipal and industrial waste. RCRA, which amended the Solid Waste Disposal Act of 1965, set national goals for:

- Protecting human health and the environment from the hazards of waste disposal.
- Conserving energy and natural resources.
- Reducing the amount of waste generated.
- Ensuring that wastes are managed in an environmentally-sound manner.

Recycle - The process of capturing a useful product from a waste stream. Solvent recovery, metals recovery, and acid regeneration are examples of recycling.

Release - Any spilling, leaking, pumping, pouring, emitting, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, including the abandonment or discarding of barrels, containers, and other closed receptacles of any EPCRA Section 313 chemicals.

SARA - Superfund Amendments and Reauthorization Act of 1986 (SARA Title III), also known as The Emergency Planning and Community Right-to-Know Act (EPCRA), was enacted in 1986. This law provides an infrastructure at the state and local levels to plan for chemical emergencies. Facilities that store, use, or release certain chemicals, may be subject to various reporting requirements. Reported information is then made publicly available through the **Toxics Release Inventory** and other programs so that interested parties may become informed about potentially dangerous chemicals in their community.

Selective Catalytic Reduction (SCR) - Nitrogen oxides (NO_x) emissions in boiler exhaust gas are converted into elemental nitrogen and water by injecting a nitrogen-based chemical reagent, most commonly ammonia, into the gas and then passing the gas through a catalyst bed where the NO_x and ammonia react to form nitrogen and water vapor. Also see **SNCR** below.

Selective Non-Catalytic Reduction (SNCR) - Nitrogen oxides (NO_x) emissions in boiler exhaust gas are converted into elemental nitrogen and water by injecting a nitrogen-based chemical reagent, most commonly urea or ammonia into the gas in the furnace. The SNCR method does not require a catalyst, but has lower conversion efficiency than the SCR method. Also see **SCR** above.

SERC - State Emergency Response Commission - The SERC's were created in response to the federal Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, and are comprised of representatives from various state and local government organizations and industry. The primary focus of a SERC is to enhance state and local emergency response and preparedness capabilities through better coordination and planning. See **LEPC (Local Emergency Planning committee)** for more information.



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Standard Industrial Classification (SIC) Code - A four-digit code established by the Federal Office of Management and Budget used to describe the type of activity(s) at a facility. Facilities that engage in a variety of activities may possess multiple codes. Also see **North American Industrial Classification System (NAICS)**. The TRI program converted to NAICS starting with the 2006 reporting year.

Stack Test - A process of sampling an exhaust stack to determine the contents, usually in percent concentration and cubic feet per hour. Sampling is usually done through a port or series of ports at an elevated point on the stack.

TSCA - Toxic Substance Control Act – TSCA was enacted to provide information about all chemicals and to control the production of new chemicals that might present an unreasonable risk of injury to health or the environment. TSCA authorizes the Environmental Protection Agency to require testing of chemical substances. TSCA also provides authority to regulate the manufacturing, processing, import and use of chemicals. The manufacture use, and/or disposal of chemicals are covered in virtually every environmental law and in OSHA and DOT regulations, and TSCA fills the gaps in other laws and supplements sections of existing laws. EPA maintains and publishes the TSCA Inventory, which includes a list of chemicals manufactured, imported, or processed for commercial purposes in the United States. The TSCA Inventory is voluminous, with more than 75,000 chemical substances.

Toxic Chemical - A chemical or chemical category listed in 40 CFR Section 372.65 (40 CFR Section 372.3); causing acute human health risks, cancer or chronic (non-cancer) human health effects, and/or environmental effects.

Treatment - The removal, destruction, alteration, or stabilization of the waste. Biological treatment, incineration, and neutralization are examples of waste treatment. Wastewater treatment plants and hazardous waste incinerators are examples of treatment facilities.

TRI - The Toxics Release Inventory (TRI) is a publicly available EPA database that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups as well as federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990.

TSDF - Treatment, Storage, and Disposal Facility - A site where a hazardous substance is treated, stored or disposed of. TSDF facilities are regulated by EPA and states under the **Resource Conservation and Recovery Act (RCRA)**.

VOC - Volatile Organic Compounds - Chemical compounds containing carbon and hydrogen which readily evaporate at room temperature.

Waste Management - EPA interprets waste management to include the following activities: recycling, combustion for energy recovery, treatment for destruction, waste stabilization, and release, including disposal. Waste management does not include the storage, container transfer, or tank transfer if no recycling, combustion for energy, treatment for destruction, waste stabilization, or release of the chemical occurs at the facility.

More terms and acronyms can be found at: <http://www.epa.gov/OCEPaterms/intro.htm> .